

Serial No. 10/717,468

Attorney Docket No. 11-205

**REMARKS**

Please consider the following comments. Following this response, claims 1-19 are pending. Applicants respectfully request reconsideration and allowance of this application in view of the above amendments and the following remarks.

***Claim Rejections – 35 U.S.C. § 102***

The Examiner has rejected claims 1, 5, 6, and 8 under 35 U.S.C. § 102(b) as being allegedly anticipated by United States Patent No. 6,246,359 to Asano et al. ("Asano"). Applicants respectfully traverse this rejection.

As Applicants will show, the present claimed invention is based on a totally different concept as that of Asano. The radar disclosed in Asano is based on scanning transmission antennas to radiate radio waves onto respective sectioned detection areas. This can be seen by way of example in the five transmitting antennas 5 of FIG. 3 of Asano, which each have a mutually different azimuthal direction of a directional beam. (See, e.g., Asano, column 4, lines 48-52, and FIG. 3.) In other words, an overall detection area for the radar in Asano is divided into multiple sectioned detection areas. And in every sectioned detection area, a radio wave is transmitted and its reflected wave is received for the detection of objects which may be present in that sectioned detection area.

In this way, a received signal from each sectioned area already shows information with respect to the presence of objects in a corresponding sectioned detection area. And it is separated from the detection for the other sectioned detection areas, because the radio waves are scanned separately for each sectioned detection area. Depending upon whether or not reception signals come from each sectioned detection area, the radar unit then decides whether a target is present in each area.

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In contrast, the apparatus recited in Applicants' claim 1 does not employ a technique involving the use of scanning transmission antennas. Without such a separated scanning operation, the recited transmission antenna radiates a radio wave onto an overall (i.e., unsectioned) spatial area to be covered. Signals detected by the reception antenna or antennas are thus composed of mixed signals reflected by objects in the overall spatial area. As a result, the invention of claim 1 employs devices to determine, based on the mixed received signals, which detection area produces which reflection signals (i.e., the locations of targets).

Thus, the direction calculating device and the range determining device described in Asano operate in different ways from the apparatus recited in Applicants' claim 1. For instance, for a given direction of  $\theta$ , the existence of objects is determined only in the direction of  $\theta$ .

In particular, claim 1, as amended, recites a plurality of transmission/reception channels, the transmission/reception channels including a transmission antenna transmitting radio waves to cover the entire spatial area in response to a transmission signal to be given, a reception antenna receiving reflected radio waves coming from the spatial area so as to produce the reception signal in accordance with the reflected radio waves, and a receiver processing the two reception signals into processed signals.

As noted above, Asano does not disclose the use of a transmission antenna transmitting radio waves to cover an entire spatial area to be tracked, as required by claim 1, nor the use of a reception antenna receiving reflected radio waves coming from the spatial area so as to produce the reception signal in accordance with the reflected radio waves.

In addition, amended claim 5 further recites that the transmission antenna is composed of one transmission antenna that forms part of one transmission channel, the reception antenna is composed of a plurality of reception antennas that form part of a plurality of reception channels,

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and the plurality of transmission/reception channels are composed of a combination of the one transmission channel and the plurality of reception channels. Nothing in Asano discloses the use of a single transmission antenna and a plurality of reception antennas.

Claims 6 and 8 depend from claim 1 and are allowable for at least the reasons given above for claim 1. Claim 6 also depends from claim 5 and is allowable for at least the reasons given above for claim 5.

Applicants therefore respectfully request that the Examiner withdraw the rejection of claims 1, 5, 6, and 8 under 35 U.S.C. § 102(b) as being allegedly anticipated by Asano.

***Claim Rejections – 35 U.S.C. § 103***

The Examiner has rejected claim 7 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Asano in view of United States Patent No. 4,160,974 to Stavis ("Stavis").

Claim 7 ultimately depends from claims 1 and 5 and is allowable for at least the reasons given above for claims 1 and 5. What Asano does not disclose, it likewise does not suggest. And nothing in Stavis cures the deficiencies in Asano.

In particular, nothing in Asano or Stavis, alone or in combination, discloses or suggests the use of a plurality of transmission/reception channels, the transmission/reception channels including a transmission antenna transmitting radio waves to cover an entire spatial area to be tracked in response to a transmission signal to be given, a reception antenna receiving reflected radio waves coming from the spatial area so as to produce the reception signal in accordance with the reflected radio waves, and a receiver processing the two reception signals into processed signals, as recited in claim 1.

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Likewise, nothing in Asano or Stavlis, alone or in combination, discloses or suggests that the transmission antenna is composed of one transmission antenna that forms part of one transmission channel, the reception antenna is composed of a plurality of reception antennas that form part of a plurality of reception channels, and the plurality of transmission/reception channels are composed of a combination of the one transmission channel and the plurality of reception channels, as recited in claim 5.

Applicants therefore respectfully request that the Examiner withdraw the rejection of claim 7 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Asano in view of Stavlis.

***Allowable Subject Matter***

The Examiner objected to claims 2-4 and 9-14 as being dependent upon a rejected base claim, but has indicated that they would be allowable if rewritten into independent form including all of the limitations of the base claim and any intervening claims.

Applicants respectfully acknowledge that these claims contain allowable subject matter. However, since Applicants also submit that claim 1, from which all of claims 2-4 and 9-14 ultimately depend is also allowable, Applicants do not wish to amend claims 2-4 and 9-14 at this time. Since claims 2-4 and 9-14 depend from claim 1, they are also allowable for at least the reasons given for claim 1 above.

***Claim Amendments***

By this response, Applicants have amended claims 1, 3, 5, 7, 9, 11, 12, and 14 to correct a number of grammatical and syntax errors, as well as to improve their readability. These amendments are being made solely to clarify what is recited by these claims, and not in response to an art rejection. Any narrowing amendment to the claims in the present amendment is not to be construed as a surrender of any subject matter between the original claims and the present

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claims; rather this is merely an attempt at providing one or more definitions of what the applicant believes to be suitable patent protection. The present claims provide the intended scope of protection that the applicant is seeking for this application. Therefore, no estoppel should be presumed, and the applicant's claims are intended to include a scope of protection under the Doctrine of Equivalents.

### *New Claims*

By this response, Applicants have added new claims 15-19. Applicants respectfully request that the Examiner enter and consider these claims. Applicants believe that these new claims are allowable for at least reasons comparable to those given above for claim 1.

### *Conclusion*

For all the reasons advanced above, the applicant respectfully submits that pending claims 1-19, as amended are allowable.

In view of the foregoing, the applicant respectfully submits that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

Please charge any unforeseen fees that may be due to Deposit Account No. 50-1147.

Respectfully submitted,



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